

**PROGRESS REPORT OF
WOLF POPULATION MONITORING
IN WISCONSIN
FOR THE PERIOD
OCTOBER 2001 - MARCH 2002**

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ABSTRACT

Gray wolf (*Canis lupus*) populations have been monitored continuously since fall 1979. Gray wolves are listed as state threatened (since 1999) and federally endangered (since 1967 and 1974) in Wisconsin. A minimum count over winter 2001-2002 consisted of 323-339 wolves in 81 packs and 8-9 loners. A total of 309-325 wolves occurred outside of Indian reservations, thus exceeding the state delisting goal of 250 wolves outside of Indian reservations. The state wolf population increased 25.7% from last winter's population of 257 wolves. The mean winter territory of 24 adults was 45 square miles. Total occupied range of territorial wolves was 5,014 square miles at a density of 1 wolf per 15.2 square miles. An estimated 89 to 151 pups survived to late winter for an average survival rate of 34%.

INTRODUCTION

Wolves (*Canis lupus*) disappeared from Wisconsin in the late 1950's following nearly 100 years of intense predator control (Thiel 1993). Following elimination of bounties and endangered species designation, wolves returned to Wisconsin in the mid 1970's (Wydeven, et al 1995). The State of Wisconsin listed the gray (timber) wolf as a state endangered species in 1975, and began a formal population monitoring program in 1979 (Wydeven 1995). Continuous annual monitoring has occurred in the state through winter 2001-2002. Population monitoring of

wolves was considered an important management strategy in the 1989 recovery plan (Wisconsin DNR 1989), and the 1999 state wolf management plan (Wisconsin DNR 1999).

Wolves were reclassified as a state threatened species on October 1, 1999, and the U.S. Fish and Wildlife Service began the process of federal reclassification to threatened in 2000; that process should be completed in summer 2002. A population of 80 or more wolves for 3+ years was the criteria for state and federal reclassification to threatened. Federal delisting criteria for the eastern U.S. required a combined population of 100 wolves for Wisconsin and Michigan for 5 or more years. The combined state populations have been at this level since 1994, and currently are approaching 600 wolves. Therefore, the federal delisting process can begin anytime and will probably begin soon after reclassification to threatened is completed.

The state delisting goal is a population of 250 wolves for one year outside of Indian reservations (Wisconsin DNR 1999). The wolf population in 2000 and 2001 was just slightly below this level (Wydeven et al 2001). A population of 350 wolves in Wisconsin represents the desired management population, and once the population exceeds this level, pro-active controls and possibly a public harvest can be considered. Federal delisting will be necessary before more flexible controls are possible under state delisting.

The present report covers surveys conducted in Wisconsin from 15 September 2001 through 14 April 2002. This report is the third population survey since the completion of the 1999 wolf management plan, and will determine if the state delisting process will begin.

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METHODS

A territory mapping system (Fuller et al 2001) was used to determine the state wolf population. Radio telemetry surveys were conducted as described by Mech (1974), and were used to determine territory distribution and wolf numbers for collared packs (Fuller and Snow 1988). Aerial locations were obtained on VHF radio collared wolves about once per week. Two wolves were monitored by satellite radio collars (Ballard et al 1998) produced useable locations about 5-7 times per week. The highest count in mid or late winter was generally considered the pack size for population determination. Home range area for the winter period (15 September - 14 April) was calculated using the minimum convex polygon (Mohr 1947); isolated radio locations over 5 km from other points were considered extra-territorial moves (Fuller 1989). Home range area was calculated only for animals that occupied stable areas, and did not include dispersing wolves.

Snow tracking and sign surveys (Thiel and Welch 1981, Wydeven et al 1996) were used to obtain counts of wolves in packs without collared wolves, or to supplement collared packs where few visual observations were made from the air. Presence of double raised-leg urinations (RLU's) were generally used to determine breeding activity, especially when estrus blood was also present (Rothman and Mech 1979); breeding status was surmised for some packs based on regular breeding history in the past, or large pack size, and in some cases was determined by observation of freshly excavated den site in late winter. Pack size was determined by tracking wolves for as far as possible along snow covered roads by vehicle or off-road by skis or snowshoes. Separations of packs were determined by distance between observations as well as directions of movements and timing of observations. Only track observations from experienced trackers or well documented observations were used to obtain the state wolf count. Observations

reported by the general public or volunteers were used to focus survey activity, but were only included in the state count if verified by an experienced tracker. Packs along the border with Michigan or Minnesota were included with the Wisconsin count only if 50% or more of the territory or home range occurred in Wisconsin.

Area of wolf occupancy was determined by summing up the area of all packs in the state and multiplying by 1.37 to include 37% interstitial areas around the territories (Fuller et al 1992). Current year's information on home range was used for collared packs, and values obtained within the last 3 years were used on previously collared packs. State wide average values for adult wolves (45 mi²) were used to estimate area for non collared packs or packs not collared in the last three years.

Pup estimates in packs during winter were determined by change in numbers from previous surveys, knowledge of pup presence from summer howls and observations, and knowledge of composition from previously captured animals. Pup survival was estimated by taking the mid point of the estimated number of pups, and dividing by the number of breeding females the previous winter multiplied by 5.2 pups (the average number of implanted fetuses in 5 adult female wolves examined in Wisconsin).

The winter of 2001-2002 was the seventh year that we used volunteer carnivore trackers to supplement DNR track surveys. All heavily forested portions of northern and central Wisconsin were subdivided into 129 survey blocks, averaging about 200 square miles each (Appendix 3). During the current year, volunteers surveyed 49 blocks, DNR trackers surveyed 77 blocks and 91 total blocks were surveyed by either regular DNR trackers or volunteers. Volunteers were asked to conduct at least 3 "good" surveys per block, and track about 60-100 miles of snow covered roads. Volunteer trackers included personnel from DNR-Wildlife Management, U.S. Forest Service, U.S. Army, National Park Service, Tribal biologists, university students and private citizens.

RESULTS AND DISCUSSION

A total of 81 packs/groups were detected in 25 Wisconsin counties in winter 2001-2002 (Figure 1). Thirteen packs occurred in seven central Wisconsin counties, and 68 packs occurred in 14 northern counties. The most eastern pack consisted of the Dunbar pack in northwest Marinette County, and southern Florence County. Radio collared wolves were monitored in 35 (43%) packs in the state during the winter.

Forty-three radio collared wolves were monitored during portions of the winter period in 35 Wisconsin packs, 1 Minnesota pack and 2 as loners (Table 1). Wolves M711M and 394M appeared to be loners throughout the time they were monitored, but M711M was located only twice before being killed, and 394M was a translocated wolf that traveled extensively before being killed. Fourteen wolves went off the air during the period including: 10 died, 3 lost signals, and 1 slipped its collar. One wolf seemed to have settled into a territory in Michigan along the Wisconsin border at the time of his death (394M). One Michigan wolf (M711M) was monitored for a short period before he was killed, and 2 wolves from Michigan were killed in

Wisconsin before they were detected (M4902M and M4906M; not included in Table 1). The 43 radio collared wolves included 18 adult males, 17 adult females, 3 yearling males, 1 yearling female, 2 male pups and 1 female pup. At the end of the winter, collared wolves included 12 adult males, 13 adult females, 1 yearling male, 1 yearling female, 1 male pup and 1 female pup.

Mean winter home range of 26 wolves located 20 or more times was 47 square miles for VHF collars (Table 2). Mean territory size of 24 adults was 45 square miles, with a range of 15 square miles (Ranger Island pack) to 87 square miles (Black Lake pack). Average home range area in northern Wisconsin (49 square miles) was larger than central Wisconsin (40 square miles) but a broad range of variation existed for both areas (north 15-118 square miles, central 26-57 square miles). One wolf monitored by satellite collar had a home range of 143 square miles, but satellite telemetry tends to have greater error rates that can inflate the area of a home range (Ballard et al 1998). Actual home range areas are probably somewhere between minimum area produced by VHF telemetry and inflated areas resulting from satellite telemetry.

WOLF PACK AND LONE WOLF SUMMARIES

Wolf packs are illustrated in Figure 1, but lone wolves are only described in the text. Nicknames for radio collared wolves used in the field are listed in Appendix 1.

Truck Trail Pack - Douglas & Pine Counties - Block 2: 5 wolves; wolf 268 (adult male) was observed on 7 of 14 radio locations with up to 4 other wolves; 3-6 wolves detected on 59.8 miles of track survey; RLU with estrus blood found on 14 February; winter territory 59 square miles (26 locations); probably 2-3 pups.

Moose Road Pack - Douglas & Pine Counties - Block 2 & 11: 3-6 wolves; adult female (295F) identified as one of 3 members of the Totagatic River pack, may have replaced or joined the Moose Road Pack; the 82 square mile (32 locations) winter home range of 295F appeared to overlap the traditional Moose Road Pack; wolf 155M (adult male) went off the air in this pack after 27 August 2001; wolf 187F (8 year old female with inactive collar) was found dead from mange in this territory on 30 November 2001; possibly 1 to 3 pups survived from 2001.

North Empire Pack - Douglas County - Block 3 & 4: 3+ wolves; 10.6 miles survey in block; adult male 267M went off air in April 2001; RLU's found and breeding probably occurred; possibly 1 pup survived from 2001.

South Empire Pack - Douglas County - Pack 3 & 9: 3 wolves; wolf 297M (adult male) was observed on 5 of 16 radio locations with up to 2 other wolves; 49 square mile winter territory (30 locations); breeding probably occurred, but possibly no pups survived from 2001.

Moose Lake - Douglas County - Block 4: 5 wolves; 23.2 miles tracking by DNR and 36.0 miles by volunteers; RLU's found, thus probable breeding; 2-3 pups probably survived from 2001.

Shoberg Lake Pack - Douglas County - Block 6 & 8: 4 wolves; 63.0 miles tracking by DNR in both blocks and track observations by Greg Kessler (DNR) and Buck Follis (USDA-WS); RLU's found - probable breeding; 1-2 pups survived from 2001; 2 hounds were killed by this pack in 2 depredation events in July 2001.

Casey Creek Pack - Douglas County - Block 7 & 6: 4 wolves; 28.9 miles tracking by DNR in Block 7, and track observations by Greg Kessler and Buck Follis; probable breeding again occurred and it appeared 2 pups survived from 2001; 5 hound dogs were killed by this pack in a depredation event in September 2001.

Bird Sanctuary Pack - Douglas County - Block 9: 3-5 wolves; 55.2 miles survey by DNR and 56.0+ miles by volunteers in this block; RLU found and breeding probably occurred; 1-3 pups may have survived from 2001. One hound dog was killed by this pack in a depredation event in September 2001.

Crotte Creek Pack - Douglas County - Block 9: 4 wolves; 296M (adult male) was observed on 7 of 17 radio locations with up to 3 other wolves; he occupied a winter territory of 46 square miles (28 locations); 55.2 miles of DNR survey in the block and RLU's found, thus probable breeding; 1 or 2 pups may have survived from 2001.

Totagatic River Pack - Douglas & Burnett Counties - Blocks 10 & 11: 3 wolves; wolf 295F (adult female) was seen 7 times of 17 radio locations with up to 2 other wolves; her winter home range covered 82 square miles (32 locations) and may have taken over or joined the Moose Road Pack; breeding probably occurred, and no pups were thought produced in 2001.

Riverside Pack - Burnett County - Block 10 & 2: 2 wolves; 16.4 miles surveyed by DNR in this block; possibly members of Chase Brook pack; no evidence of breeding activity.

Chase Brook - Burnett, Douglas & Pine Counties - Block 11: 3 wolves; 26.7 miles of surveys in this block; RLU's found; wolf 367F (adult female) was found dead in the south end of the Moose Road area on 3 January 2002, and was probably killed by other wolves; she occupied a 10-square mile (17 locations) home range area. The Chase Brook pack was involved in depredation during summer 2001, and at least 9 calves were killed; 7 wolves were trapped and translocated from the farm (4 pups, 1 yearling male, 1 adult male and 1 adult female). One pup was still detected in the pack after trapping, and perhaps survived to late winter.

Stuntz Brook Pack - Washburn County - Block 12: 4-6 wolves; Ken Jonas (DNR) detected 4-6 wolves in the Stuntz Brook area, and found evidence of breeding activity (RLU's); 1-3 pups may have survived from 2001.

Crex Meadow Pack - Burnett & Pine Counties - Block 13: 7 wolves; wolf 388M (adult male) was observed with up to 6 other wolves on 7 of 17 radio locations; he occupied a winter territory of 73 square miles (31 locations); the pack spent most of the winter in Minnesota in the Chengwanta State Forest and St. Croix State Park, but again started spending time in Wisconsin in late winter; breeding was suspected and probably 5 pups survived from 2001.

Sterling Barrens Pair - Polk & Burnett Counties - Block 14: 2 wolves; Paul Kooiker (DNR) conducted 43.5 miles of survey in this area of northwest Polk and southwest Burnett Counties; no evidence of breeding was found.

Long Lake Loner - Washburn County - Block 19: 1 wolf; a lone wolf was detected east of Spooner in the area northwest of Long Lake; reports of 1 or 2 wolves were also received from areas to the north in Block 21.

Blue Hills - Rusk, Sawyer & Barron Counties - Block 20: 2 wolves; 190.6 miles of survey were conducted in this Block by DNR and 246.3 miles were surveyed by volunteers; breeding was suspected; no pup survival was verified, but some evidence of additional wolves was found by 1 volunteer tracker.

Springbrook Loner - Pair? - Washburn County - Block 21 & 22: 1 or 2 wolves; Ken Jonas found evidence of 1 or 2 wolves in the Springbrook area; no evidence of breeding was found.

Tranus Lake Pack - Washburn County - Block 22: 7 wolves; wolf 292M (adult male) was observed with up to 6 other wolves on 7 of 17 radio locations; he occupied a winter home range of 48 square miles (31 locations); breeding was suspected; 2-4 pups apparently survived from 2001; 2 hounds were killed in 1 depredation event by this pack in September 2001.

Chain Lake Pack - Washburn, Douglas, Sawyer & Bayfield Counties - Blocks 23 & 8: 6 wolves; wolf 291M (adult male) was detected with up to 5 other wolves on 10 of 17 radio locations; he occupied a winter territory of 62 square miles (31 locations); the Chain Lake pack appeared to have shifted its home range southward into the former Frog Creek Pack area; RLU's were detected along 41.5 miles of survey by DNR; probably 3 or 4 pups survived from 2001.

Ghost Lake Pack - Sawyer & Bayfield Counties - Block 24: 3 wolves; wolves 241F (adult female) and 250M (yearling male) occupied this home range with 1 other wolf in early winter; home range area for 241F throughout winter was 34.5 square miles (23 locations), while 250M occupied 30.6 square miles (15 locations) before going off the air in late January. In early winter, the 3 wolves did some extensive traveling. On 18 December they were 12 miles to the southwest near Hayward, on 28 December the 3 were 8 miles to the west in the Smoky Hill area, and on

2 January the 3 were 22 miles to the south near Radisson in Sawyer County. On 17 January, 241 was found with 2 other non-collared wolves east of the Chippewa Flowage, 12 miles south of the territory, but 250M had returned to the center of the territory. The signal for 250M was lost after 30 January 2002, and another male apparently replaced him. RLU's and estrus blood were detected on 17 February along a 29.8 mile survey by DNR, and along 42.2 miles surveyed by volunteers.

Smoky Hill Pack - Bayfield County - Block 25: 4 wolves; 89.7 miles surveyed by DNR, including RLU's and estrus blood on 4 March 2002; possibly 0-2 pups survived from 2001.

Moreland Lake Pack - Bayfield County - Block 26: 3 wolves, 98.7 miles surveyed by DNR in this block; no sign of breeding activity was detected.

Rainbow Lake Pack - Bayfield County - Blocks 27 & 28: 10 wolves; 49.3 miles were surveyed by DNR in the 2 blocks, and RLU's and estrus blood were detected on 7 January 2002; a volunteer conducted 98 miles of survey in Block 28; probably 4-6 pups survived in the pack from 2001.

Ino Swamp Pack - Bayfield County - Block 27: 3 wolves; this pack was detected on 26 January and displayed RLU's; several public observations had been reported on this pack in the Chequamegon National Forest southwest of Ino.

Porcupine Lake Loner - Bayfield County - Block 29: 1 wolf; no wolves were detected along 23.7 miles of survey by DNR, but a lone wolf was twice detected by a volunteer along 31.7 miles of survey.

Moquah Pack - Bayfield County - Block 30: 3-4 wolves; 31.6 miles of survey were conducted by DNR and RLU's were found along 2 surveys; this pack may have been involved with depredation on 3 calves near Moquah in early January; this pack may have split off from the Siskiwit Lake pack; the pack may include 1 or 2 pups produced in 2001.

Siskiwit Lake (Little Sioux River) Pack - Bayfield County - Blocks 30, 32 & 33: 4 wolves; wolf 369F (adult female) was observed with up to 2 other wolves on 4 of 17 radio locations; 369F was seen with 8 other wolves on 17 October, but some may have split off to form the Moquah pack to the south; she occupied a winter home range of 61 square miles (29 locations); 41.0 miles were surveyed by a volunteer and RLU's with estrus blood were detected on 2 February 2002; possibly 0-1 pups survived from 2001; this pack was involved in 3 depredations on 4 hounds in July and September 2001.

Flag River - Bayfield County - Block 31: 2 wolves; 59.4 miles of survey were conducted by DNR and RLU's were detected; no pups apparently survived from 2001.

Orienta Falls Pack - Bayfield & Douglas Counties - Blocks 31 & 7: 3 wolves +; 28.9 miles surveyed in Block 7; Greg Kessler and Buck Follis detected tracks of 3+ wolves in Orienta Falls area.

Hellhole Creek Pack - Ashland & Bayfield Counties - Block 35: 5-6 wolves; 76 miles of surveys conducted in area by DNR; breeding evidence not detected, but suspected; probably 1-3 pups survived from 2001.

Brush Creek Pack - Ashland County - Block 36: 7 wolves; wolf M310M was observed with up to 6 other wolves on 6 of 15 radio locations; he occupied a 33 square mile (24 locations) area through 12 March 2002 when his signal was lost; he had moved into this area in February 1999, and had been radio collared as a pup in November 1997 in Houghton County, Michigan; RLU's and estrus blood was found on 17 January 2002 along part of 23.4 miles surveyed by DNR; 3-4 pups probably survived from 2001.

Black Lake Pack - Ashland & Sawyer Counties - Blocks 24 & 37: 5 wolves; 370F (adult female) was observed 4 times of 17 radio locations with up to 3 other wolves; 5 wolves were detected along 61.3 miles of tracking by DNR; RLU's were observed; probably 1-3 pups survived from 2001; 370F occupied a winter territory of 87 square miles (29 locations).

Hungry Run Pack - Ashland County - Blocks 38, 40 & 37: 8 wolves; 153.8 miles were surveyed in Block 38 by DNR; RLU's were found and this pack seemed to center its territory on FR164 from Co. GG to the Chippewa River; 6 pups probably survived from 2001.

Shanagolden Pack - Ashland County - Block 38: 2 wolves; RLU's were detected with this pack on the eastern edge of the Great Divide District of the Chequamegon National Forest; no pups apparently survived from 2001.

Torch River Pack - Ashland County - Block 38, 36 & 37: 5 wolves; wolf 248M was observed 5 times out of 17 radio locations with up to 2 other wolves; 5 wolves displaying RLU's were detected in the area along portions of the 153.8 miles surveyed by DNR in Block 38; 248M occupied a 39 square mile (29 locations) territory in winter; apparently 1-3 pups survived from 2001.

West Firelane Pack - Ashland & Iron Counties - Block 39 & 60: 4 wolves; wolf M036F (adult female) was observed with up to 3 other wolves on 8 of 17 radio locations; she occupied a 28 square mile home range during winter (27 locations); breeding probably again occurred and 2 pups probably survived from 2001. The pack occurred mainly in the Bad River Indian Reservation.

Morrison Creek Pack - Ashland & Iron Counties - Block 39 & 60: 4 wolves; tribal biologist Tom Doolittle reported 4 wolves in this pack on the northeast side of the Bad River Indian Reservation.

Log Creek Pack - Sawyer County - Block 40: 4 wolves; wolf 286F (adult female) was detected by herself on 4 of 10 radio locations prior to her death from mange on 6 February 2002; she occupied a 28 square mile (20 locations) home range during winter. Death of 286F probably marked the demise of the Brunet River pack (Pair?), and the Log Creek pack apparently re-occupied this area; 4 wolves were detected along 76.3 miles of track survey by DNR and 66.8 miles by volunteers and RLU's with estrus blood were detected on 5 March 2002; 1 or 2 pups may have survived from 2001.

Davis Lake Pack - Price County - Block 41: 8 wolves; 97.6 miles were surveyed by DNR in block 41; 8+ wolves were detected southwest of Fifield on 24 March and displayed RLU's; it appeared that 6 pups probably survived from 2001.

Price Creek Pack - Price & Sawyer Counties -m Block 41 & 44: 3 wolves; RLU's were not detected; the alpha male of this pack (wolf 268M) disappeared after 17 October and an adult female was found shot to death east of this pack territory on 27 October; the pack may have lost both of its alpha animals; 1 or 2 pups may have survived from 2001.

Thornapple River Pack - Sawyer County - Block 41 & 40: 2 wolves; 2 wolves displaying RLU's were detected on industrial forest land west of the Flambeau State Forest on 31 January; breeding may have occurred; apparently no pups survived from 2001.

Eddy Creek Pack - Sawyer County - Block 42 & 20: 5 wolves; 2+ wolves were detected along 15.5 miles of survey in Block 42, displaying RLU's along the way; 5 wolves detected on the north end of survey block 20 on 12 March were thought to also include this pack; the pack appears to be mainly located on the Lac Courte Oreilles Indian Reservation.

Tupper Creek Pack - Sawyer County - Block 42 & 43: 2 wolves; 2 wolves displaying RLU's were detected in the Tupper Creek area along 88.7 miles of survey by DNR in this block; no pups apparently survived from 2001.

Haystack Corner Pack - Sawyer & Rusk Counties - Block 43: 5 wolves; 88.7 miles were surveyed in this Block by DNR, and 5 wolves in the Haystack Corner Pack displaying RLU's were detected on 2 surveys; 3 wolves were also detected in this pack by volunteers along 23.6 miles surveying; 2 or 3 pups apparently survived from 2001.

Skinner Creek Pack - Price & Sawyer Counties - Block 44: 5-6 wolves; 52.0 miles were surveyed by DNR and 64.8 miles were conducted by volunteers within this block in western Price County and the Flambeau Forest of Sawyer County; RLU's were detected on one survey; this new pack may have moved in the area late last winter or perhaps split from the Price Creek pack; probably 3-4 pups survived from 2001.

Kidrick Swamp Pack - Taylor & Price Counties - Block 46 & 47: 5 wolves; 93.3 miles were surveyed in these two blocks; RLU's were found on 2 of 4 surveys; 1-3 pups probably survived from 2001; the pack apparently caused depredation on a hound in August 2001.

Mondeaux Flowage Loner - Taylor County - Block 47: 1 wolf; a lone wolf was detected near Mondeaux Flowage on 22 January and reports were received of 1 or 2 wolves near Perkinstown during the winter; the lone wolf did make one RLU and perhaps was attempting to establish a territory.

Spirit Lake - Lincoln, Price & Taylor Counties - Blocks 49 & 70: 3 wolves; 73.1 miles surveyed by DNR in this block, and RLU's with estrus blood were found on 25 February; apparently 1 pup survived from 2001; the pack caused depredation on 1 calf in southeast Price County in summer 2001.

Clifford area - Price & Oneida Counties - Block 51: During 27.0 miles of tracking by DNR, 1 wolf was detected in this area early in winter, but the area was later taken over by the Little Rice River Pack, and this wolf may have joined that pack. Volunteers also conducted 72.6 miles of survey in this block and detected 2 wolves that were probably wolf 393F and companion.

Wolf 393F and Companion - Price, Ashland & Iron Counties - Blocks 51,52,53,54,55 & others: 2 wolves; 393F (female pup) was released in the Bootjack Lake pack in northwest Oneida County on 28 August 2001 with 3 siblings. The other 3 pups died within 3 weeks. Wolf 393F remained in the pack area until 23 November, but did not seem to bond with the pack. After 23 November she moved 17 miles to the southwest. From 3 December through 18 December, 393F remained in a conifer/swamp area 4 to 8 miles east of Phillips. Between 27 December through 9 April 2002, 393F mainly occupied a 63 square mile (14 locations) home range area 18 miles south to north and east of Phillips, Fifield and Park Falls to the south end of Ashland County. Two moves from this area occurred during winter. On 6 February 2002, wolf 393F moved 18 miles to east to again visit the Bootjack Lake pack, and apparently met up with a member of that pack. This second wolf appeared to remain with 393F for the rest of the winter. On 20 March, 393F moved 17 miles to the north to an area east of Augustine Lake in west Iron County, but by 26 March she returned to the area east of Park Falls.

Wilson Flowage Pack - Price County - Block 52: a total of 42.7 miles of survey were conducted in the Wilson Flowage area, but no wolves were detected. It appeared that the Bootjack Lake pack may have taken over the territory, and parts of the western portions of this area were roamed by 393F and her companion.

Miles Lake Loner - Iron, Price, Ashland, Oneida & Vilas Counties - Block 54: 1 wolf; volunteers found 1 wolf on the north end of this block along 83.1 miles of survey.

Wintergreen Lake Pack - Price County - Blocks 54, 52 & 55: Wolf 316F (adult female) of this pack roamed areas east of Fifield and Park Falls, but was found dead on 8 January 2002 with mange and perhaps some injury (necropsy not completed). No additional wolves were found in survey Block 54 through 58.8 miles of survey by DNR; 83.1 miles of tracking were done by volunteers in this block, and they found 1 wolf on the north side in the Lac du Flambeau Indian reservation (Miles Lake loner).

Bootjack Lake Pack - Price & Oneida Counties - Blocks 53, 52 & 51: 10-11 wolves; wolf 336M (yearling male) was observed with up to 11 other wolves on 11 of 17 radio locations; he occupied a winter territory of 118 square miles (29 locations); after translocated wolf 393F was joined by a second wolf on 5 February, aerial counts had been 9 or less for the Bootjack Lake pack; 10-11 wolves were detected in late winter by 17.8 miles of tracking by DNR; 105.1 miles of survey were also conducted by volunteers; breeding apparently again occurred; pup survival was probably high and the pack may have included 5 to 7 pups that survived from 2001.

Murray's Landing Pack - Iron County - Block 55: 5 wolves; 11.2 miles of survey in this block by DNR found RLU's and 5 wolves in Murray's Landing area; a volunteer also surveyed 79.9 miles in this block and found RLU's and estrus blood on 31 January 2002; probably 3 pups survived from 2001.

Hoffman Lake Pack - Ashland, Iron & Price Counties - Block 55: 3 wolves; 11.2 miles of survey in this block by DNR and 2+ wolves detected; 79.9 miles of survey by volunteers detected 3-5 wolves and found RLU's with estrus

blood on 5 February and 1 March 2002; wolf 245F (adult female) was monitored until 20 November when her chewed up collar was found (15 square mile area; 10 radio locations); possibly 1-2 pups survived from 2001.

East Firelane Pack - Ashland County - Block 56 & 57: 3-4 wolves; 87.4 miles were conducted in this block by DNR; RLU's with estrus blood from 18 February 2002; possibly 1 or 2 pups survived from 2001.

Chippewa River Pack - Ashland & Iron Counties - Block 56, 57 & 58: 8 wolves; wolf 351M (adult male) was observed aerially on 9 of 16 radio locations with up to 5 other wolves; 8-9 wolves with RLU's and estrus were detected on 21 January and 6 March by DNR tracker along 87.4 miles; wolf 351M occupied a winter territory of 45 square miles (29 locations); possibly 3-4 pups survived from 2001.

Augustine Lake Pack - Ashland & Iron Counties - Block 57: 7 wolves; 50.5 miles of tracking were done in this territory by DNR, and RLU's with estrus blood were found on 4 January 2002; 33.6 miles of survey were conducted by volunteers in this block; probably 2-4 pups survived from 2001.

O'Brien Lake Pack - Iron County - Block 57 & 59: 4 wolves; DNR conducted 50.5 miles of track survey in block 57 and volunteers tracked 25.3 miles in Block 59; RLU's were found in both blocks and evidence of 3-6 wolves were detected in Block 59; 1 or 2 pups may have survived from 2001.

Pine Lake Pack - Iron County - Blocks 58, 59 & 61: 5 wolves; DNR conducted 26.7 miles of survey and found RLU's with estrus blood on 5 March; volunteer trackers also surveyed 32.1 miles in this block and found 3-5 wolves; possibly 1-3 pups survived from 2001.

Chaney Lake Pack - Gogebic & Iron Counties - Block 61 & Michigan Locations: 3+ wolves (Michigan pack); 37.4 miles of survey in this area by Wisconsin DNR.

Moraine Lake Pack - Gogebic & Vilas Counties - Block 62 & Michigan Locations: An adult female (MI ear tag 8029) was found dead northwest of Presque Isle on 18 December 2001; she apparently was a member of this pack that occurred mainly in Michigan; exact count of the pack was not known at the time of this report; the wolf appeared to have mange, but exact cause of death is not known.

North Willow Pack - Oneida County - Block 65: 5-6 wolves; wolf 355M (adult male) was collared in this territory on 28 June 2001; he dispersed 12-13 miles east of the territory between 16-21 November; after 23 November he moved south and after 3 December joined a group in the Little Rice River area; 12.1 miles of survey by DNR detected 5-6 wolves in the North Willow in late winter; 151.1 miles of survey were conducted by volunteers in the area and detected 4+ wolves; possibly 2-4 pups survived from 2001.

Little Rice River Pack - Oneida County - Block 67 & 51: 3 wolves; wolf 355M (adult male) was observed 8 times out of 18 radio locations with up to 2 other wolves in this pack during the period; his home range area during winter covered 27 square miles (20 locations) in this area; wolf 376F roamed portions of this area as well and was located with 355M on 3 December 2001, but she roamed extensively in Oneida, Price and Lincoln Counties and eventually moved to eastern Oneida County; this new pack may contain previous members of the Clifford pair or original Little Rice River Pack; 8.2 miles were surveyed by DNR in Block 67, and volunteers conducted 17.1 miles of survey; breeding probably occurred in this pack.

Somo River Pack - Lincoln County - Block 68: 5 wolves; 29.0 miles of survey by DNR detected 5 wolves; 80 miles of survey were conducted by volunteers; breeding activity was suspected, and 2-3 pups may have survived from 2001.

Ranger Island Pack - Lincoln County - Block 69: 5 wolves; wolf 285F (adult female) was observed 8 times with up to 5 other wolves out of 17 radio locations; she occupied a winter territory of 15 square miles (35 locations); breeding was assumed to again occur and probably 1-3 pups had survived from 2001.

Averill Creek Pack - Lincoln County - Block 70 & 48: 5 wolves; only 2 wolves were detected on 49.5 miles of survey by DNR, but Mike Lentz (Conservation Congress) detected tracks of 5 wolves in early March; breeding apparently occurred and 1-3 pups may have survived from 2001.

Harrison Hills Pack - Lincoln County - Block 71 & 75: 3 wolves; wolf 300F (adult female) was observed 3 times with up to 2 other wolves out of 17 radio locations; she occupied a winter home range of 22 square miles (35 locations); apparently only 1 pup survived from 2001; volunteers conducted 41.1 miles of survey in the 2 blocks.

Prairie River Pair - Langlade & Oneida Counties - Blocks 74 & 76: 2 wolves; wolf 395M (adult male) and 724F (adult female) occupied a home range area in northwest Langlade and southern Oneida counties. Both were translocated in northern Forest County on 11 September after translocation from Burnett County where both had been involved in depredation on livestock. The wolves were not tracked until late September and moved separately through portions of Forest, Oneida, Lincoln, Taylor and Langlade counties. The two wolves were detected together in northwest Langlade County on 15 November and occupied home range areas near the Prairie River for the remainder of the period. Home range areas for both from mid November through mid April was 395M 32 square miles (28 locations), and 724F 60 square miles (33 locations). The pair may have bred and will perhaps produce pups in the spring.

Pelican Lake Pack - Oneida County - Block 76: 4 wolves; wolf 332F was observed 4 times with up to 3 other wolves on 18 radio locations; breeding probably again occurred, and 2 pups apparently survived from 2001. The winter territory of wolf 332F was 26 square miles (37 locations). Wolf 332F was translocated from a deer farm in western Oneida County to northeast Forest County in May 2000. She roamed extensively through Forest, Oneida and Langlade counties before settling into the Pelican Lake area. It was not known last winter that she had found a mate, until pups were discovered last summer. In December 2001, this pack was involved in depredation on 2 hounds in 2 separate incidents.

Stella Lake Pair - Oneida County - Block 77: 2 wolves; wolf 376F (yearling female) was observed 3 times of 17 radio locations with 2 other wolves in the Little Rice River area and with 1 other wolf in the Stella Lake area northeast of Rhinelander; she occupied a 15 square mile home range (16 locations) from 8 January through mid April 2002; wolf 376F had traveled extensively through Oneida, Price and Lincoln counties and between 18 December 2001 to 8 January 2002 she moved 29 miles east from the Little Rice River area into the Stella Lake area.

Escanaba Lake Pack - Vilas County - Block 80: 3 wolves; 30.7 miles of survey by DNR and RLU's with estrus blood found on 8 January 2002; the new pack was located east of Trout Lake in central Vilas County.

Nineweb Lake Pack - Vilas County - Blocks 80 & 81: 3 wolves; 63.4 miles of survey by DNR and 221.1 miles were conducted by volunteers; RLU's and estrus blood was found by volunteers on 17 January 2002.

Pioneer Creek Loner - Vilas County - Block 81 & 82: 1 wolf; wolf 289F went off the air after 1 November 2001, but apparently continued to occur in the area between Conover and Land O' Lakes; she occupied a home range of 15 square miles (15 satellite locations) the wolf was most recently observed on 14 April 2002.

Giant Pine Pack - Forest County - Blocks 84 & 85: 2 wolves; 116.1 miles of survey were conducted by DNR and 61.8 miles were surveyed by a volunteer in these two blocks; 2 wolves were detected on two surveys, but breeding activity was not detected. An adult female was found dead on the west side of this area on 11 February 2002; she suffered from severe mange, but may also have been shot.

Atkins Lake Pack - Oneida & Forest Counties - Block 86: 3 wolves; 52.6 miles were surveyed in this area by DNR; RLU's with estrus blood were detected on 5 February 2002. The new pack was located north of Monico on the west edge of the Nicolet National Forest and industrial forestland.

Alvin Area - Forest & Florence Counties - Block 97: 2 wolves (Michigan pack?); 13 miles of tracking were conducted by DNR in this block; 2 wolves were tracked on 3 January that went north across the Brule River into Michigan.

Wisconsin Creek Area - Florence County - Block 99: 2 wolves (Michigan pack); 36.9 miles were surveyed in this block by DNR and 2 wolves were detected in the area including observations of RLU's and estrus blood on 13 January 2002; an adult male (ear tag 0086M, ID 3608) was found dead near Tipler on 4 February and was probably one of these two animals; the wolf had mange and may have been shot.

Dunbar Pair - Marinette & Florence Counties - Block 108: 2 wolves; tracks of 2 wolves were detected by biologist Aaron Buchholz on April 2002 near the Dunbar Wildlife Area in northern Marinette County.

Amberg Area - Marinette County - Block 112: 1 wolf (Michigan wolf?); tracks of 1 wolf were detected by volunteers on 19 January 2002 during 1 of 3 surveys in the block (total 67.1 miles); tracks were close to the Michigan border.

McAllister-Marinette Area - Marinette County - Blocks 113, 114 & 116: Reports were received of 1-2 wolves in eastern Marinette County. A translocated yearling male (394M) from Burnett County was released in Forest County last summer and died in Menominee County, Michigan northwest of McAllister on 17 January 2002. Reports were received of a collared wolf east of Marinette in early March and on 27 March an adult male (711M) was detected just west of Marinette. He was located southwest of Marinette on 1 April, but died sometime prior to 9 April, when his collar was found.

Peshtigo Brook Loner - Oconto County - Block 115: 1 wolf; tracks of a lone wolf were detected by DNR forester Todd McCourt on 22 February 2002 near the Peshtigo Brook Wildlife Area in Oconto County.

Eau Claire River Pair - Eau Claire & Clark Counties - Block 117: 2 wolves; 102.1 miles were surveyed in this block by volunteers; a pair of wolves occurred in the northern portion of Eau Claire and Clark County forests.

Iron Run Pack - Clark & Eau Claire Counties - Blocks 117 & 118: 2 wolves; wolf 309F was observed on one of 16 radio locations, and was with one other wolf; she occupied a 57 square mile territory (31 locations); DNR tracked 27.5 miles and volunteers tracked 112.6 miles; volunteers detected the possibility of 3-4 wolves, or possibly an additional group on the eastern edge.

Noch Hanai Pack - Jackson & Clark Counties - Block 119: 2 wolves; 36.6 miles surveyed on west side of this block by DNR; 45.7 miles surveyed by volunteers throughout the block, and 3.9 miles surveyed by Ho-Chunk trackers; all groups found 1-2 (possibly 3) wolves; RLU's detected on 2 surveys.

2-Korner Pack - Jackson & Clark Counties - Block 119: 2-3 wolves; 2-3 wolves found during 40.8 miles of tracking by DNR; the area was part of 45.7 miles tracked in this block by a volunteer who also found sign of 2 or 3 wolves; RLU's found. Adult male 269F was found shot to death in this pack on 19 November 2001.

Wildcat Mound Pack - Jackson County - Blocks 119 & 120: 4-5 wolves; 2+ wolves were found by 31.4 miles of tracking by DNR; 3-5 wolves were detected by volunteers along 64.9 miles and Ho-Chunk trackers along 215.5 miles. Wolf 341F (yearling female) was trapped in this pack last spring and remained in the pack until late November; during fall she occupied a home range of 36 square miles (11 locations). Between 21 November 2001 and 3 December 2001, she moved eastward 34 miles to southern Wood County, where she joined up with adult male 343M. One to three pups may have survived from 2001.

Bear Bluff Pack - Jackson, Wood & Juneau Counties - Blocks 121 & 120: 5 wolves; wolf 338M (male pup) was observed aerially 3 times out of 16 radio locations, but was not seen with other wolves; winter home range of 338M (VHF collar) was 36 square miles (31 locations) and his probable mother, wolf 311F (satellite collar) was 143 square miles (130 locations); 3-6 wolves were detected by DNR by 42.4 miles of survey in this block; volunteer trackers also surveyed 121.6 miles in this block and detected 2-5 wolves; probably 1-3 pups survived from 2001.

South Bluff Pack - Wood County - Block 121: 2 wolves; volunteers conducted over 121.6 miles of tracking in block 121, and detected 2 wolves in the South Bluff area; RLU's with estrus blood were detected on 20 January 2002.

Sandhill Loner - Wood County - Block 121: 1 wolf; a single wolf inadvertently released into the Sandhill Wildlife Area in spring 1995 continued to roam in the fenced wildlife area.

Dead Creek Pack - Jackson, Juneau & Monroe Counties - Blocks 121 & 122: 3 wolves; DNR trackers covered 49.7 miles in block 122 which probably included the Dead Creek wolves, but may also represent some of the Suk Cerney Pack; adult male 348M had been on the air since May 2001, but was apparently killed on the north side of his

territory by other wolves (probably the Bear Bluff Pack); he occupied a territory of at least 12 square miles (12 locations); possibly 1 or 2 pups had survived from last year, but it was not evident if the alpha female found a new male by breeding season.

Suk Cerney Pack - Juneau County - Block 122: 2 wolves; wolf 342M (adult male) occurred in this pack in fall but was found shot to death on 19 November 2001; a pup was also found dead in this pack on 5 April 2002 (mange?); volunteers conducted 6 track searches during winter detecting 2-3 wolves, and observing RLU's with estrus blood on 22 February; no pups apparently survived from 2001.

Yellow River Pack - Juneau County - Block 122 & 125: 3 wolves; wolf 340F (adult female) was radio located 16 times during December-March, but was not observed from the air; she occupied a winter home range area of 41 square miles (30 locations); 90.3 miles of tracking were conducted in block 125 and adjacent areas of block 122 by DNR; breeding activity was suspected; possibly 1 pup survived from 2001.

Seneca Pair - Wood County - Block 124 & 125: 2 wolves; wolf 341 (yearling female) and wolf 343M (adult male) occupied a 14 square mile area (18 locations) in Seneca Township of Wood County; wolf 343M moved into the area from northeast Jackson County on 17 October and occupied 26 square miles (26 locations) from October through mid-April; wolf 341F moved 34 miles east from the Wildcat Mound Pack prior to 3 December; both remained together for the remainder of the winter period. A volunteer conducted 60 miles of survey in this block.

Fort McCoy Pack - Monroe County - Block 123: 2 wolves; Tim Wilder and the Fort McCoy WCC crew conducted 137.8 miles of survey on the fort and found RLU's with estrus blood on 16 January 2002; this represents the first time a breeding pack has been verified on the military base. Ho-Chunk trackers covered 129.1 miles in this block north of the refuge and found no additional wolves.

Colburn Swamp Pack - Adams County - Block 127: 3 wolves; 15.4 miles surveyed by DNR in the Colburn Wildlife Area; no RLU's found; an adult male was found shot to death on 10 January 2002 in this new pack; possibly the pack produced pups in 2001.

DISPERSING AND TRANSLOCATED WOLVES

Wolf 341F: Wolf 341F was caught as a yearling female in the Wildcat Mound Pack in Jackson County on 31 May 2001. She remained in the pack through summer and early fall. On 17 October she moved 10 miles to the east to the eastern edge of Jackson County, and on 15 November she traveled 16 miles to the south to the Tomah area. Between 21 November and 3 December, 341F traveled 34 miles to the east to an area of cranberry bogs west of Wisconsin Rapids, where she joined male 343M. The 2 settled in an area of 14 square miles in southern Wood County.

Wolf 343M: This adult was caught in the northwest corner of Juneau County on 21 June 2001. He probably had already dispersed from his original pack by this time. He moved extensively in eastern Jackson, northern Juneau and southern Wood counties during summer. In early October, the wolf was living in northeast Jackson County. Between 8 October and 17 October, he moved 20 miles to the east to Seneca Township in southern Wood County. He occupied an extensive area in south Wood County, until 3 December when he joined up with yearling female 341F. The two seemed to form a territory in this cranberry bog/jack pine-oak forest area west of Wisconsin Rapids.

Wolf 355M: Wolf 355M was caught as an adult in the North Willow area in Oneida County on 28 June 2001. He made a preliminary movement 12-13 miles east of his territory between 16-21 November and spent time in an area near the Wisconsin River east of McNaughton. He returned to the territory on 23 November, but by 3 December had moved 8 miles south into the area previously occupied by the Little Rice River Pack. He initially joined with yearling female 376F, who was traveling through the area, but she moved away, and 355M apparently bred with another female. Wolf 355M took over portions of the area previously occupied by the Little Rice River Pack and Clifford Pair; he was joined by 2 other wolves that may have represented relics from 1 or both of these groups.

Wolf 376F: Yearling female 376F was caught in the region of the Little Rice River Pack of Oneida County on 12 June 2001, but her extensive movements indicate that she was perhaps not originally from this pack. In the fall, she began to make some extensive movements. On 22 and 27 October, she was located in Price County 20 and 17.5

miles west from her capture site. Between 6 and 19 November, 376F occurred in central Lincoln County, up to 29 miles south of her capture site. She remained in the Little Rice River area in late November and early December. Between 18 December 2001 and 8 January 2002, wolf 376F moved 29 miles to the northeast, to the Stella Lake area northeast of Rhinelander. On 15 January she was detected with another wolf, and the two apparently remained in a home range area near Stella Lake in eastern Oneida County.

Wolf 393F: Wolf 393F was caught as a female pup in northwest Burnett County with 3 litter mates in late July 2001. She was released in western Oneida County on August 2001, with hopes to have her join the Bootjack Lake Pack. Her siblings all died by 17 September, but 393F remained in the pack area until 23 November 2001. She moved 17 miles to the southwest in Price County by 3 December 2001. Between 3 December 2001 through mid-April 2002, she roamed an area from east of Phillips to Augustine Lake in Iron County (36 miles). She did revisit the Bootjack Lake pack on 6 February and after that traveled with another wolf that probably originated from this pack. It did not appear that wolf 393F had occupied a stable home range at the end of the period.

Wolf 394M: Wolf 394M was caught as a yearling male on a farm in northwest Burnett County on 5 August 2001 after the farm suffered depredation to calves. He was released in northern Forest County on 21 August 2001, 170 miles east of his original home range. He was lost after 2 days, apparently traveling well outside of the range of DNR pilots. Wolf 394M was rediscovered on 14 October 2001 about 14 miles to the southeast along the Popple River along the Florence/Forest County line. He remained in this area for about 3 days, and by 19 October moved northeast of Florence County. He remained in an area of southern Dickenson County, Michigan through 1 November, and up to 61 miles east of his release site. On 5 November 2001, wolf 394M had traveled 33 miles to the south, to eastern Menominee County, Michigan, and east of Wausaukee Wisconsin. From this location, 394M went back west, and from 9 November through 23 November, he roamed southern Forest and eastern Langlade counties, between Crandon and Antigo. By 3 December 2001, 394M returned to the area in western Menominee County, Michigan where he had visited on 5 November. It appeared that he had joined another pack in the area. He was found dead from a shooting on 16 January; the death site in western Menominee County was 66 miles southeast of his release site in Forest County.

Wolf 395M: Wolf 395M was caught as an adult male on 16 August 2001 on a farm in northwest Burnett County, where the Chase Brook pack had caused depredation on livestock. An adult female (724F) was also caught that day. Both wolves were released in the Nicolet National Forest of northern Forest County on 11 September 2001. Because of a federal prohibition on flying, due to the bombing of the World Trade Center in New York, no surveys were made for the next 2 weeks. When wolf 395M was finally found on 2 October 2001, he was located 66 miles to the southwest in south central Lincoln County. From there he moved into the Ranger Island pack area southwest of Tomahawk (4-7 October 2001). He then headed back north to Forest County passing through the Harrison Hills pack area (8 and 9 October), and the Pelican Lake pack area (11 October). Between 14 October through 23 October, 395M roamed near the Headwaters Wilderness Area 10-17 miles south of the release site. On 27 October, he again headed south and by 1 November was back in the Pelican Lake pack area (32 miles southwest of release site). By 5 November he was in western Lincoln County, 28 miles to the west and 63 miles southwest of the release site. He moved southward and on 9 November was 3 miles north of Merrill. From this site, 395M headed back northeast to northwest Langlade County on 11 November. He remained in the area of northwest Langlade County for the remainder of the winter. On 3 December, he joined back up with his former pack mate 724F, and the 2 remained together for the remainder of the winter period.

Wolf 724F: Adult female 724F was monitored in the Chase Brook pack of northwest Wisconsin from 28 May 1997 through 13 August 2001. On 16 August 2001 she was caught with pack mate 395M on a farm in Burnett County where the pack had caused depredation on calves. Wolf 724F had probably been the alpha female of this pack, but had been deposed the previous winter. Wolf 395M appeared to be an old alpha male. Both wolves were released into the northern portions of the Nicolet National Forest (170 miles to the east) in northern Forest County on 11 September 2001. Wolf 724F was first located with aerial telemetry on 24 September in the area of the Pelican Lake Pack, 33 miles to the southeast in Oneida County. She continued moving westward and southward. On 25 September, 724F was in the Harrison Hills pack area, and on 27 and 28 September she traveled through the Ranger Island pack. On 28 September, wolf 724F made her most western move into eastern Taylor County, 78 miles southwest of her release site, and 124 miles southeast of her capture site in Burnett County. From this location, the wolf moved 9 miles southeast and on 29 September was 79 miles southwest of her capture sight, along the southern border of Lincoln County, just above Marathon County. This would be her most southern move. She headed back

to the northeast from this location. On 4 October, 724F was back in the Harrison Hills pack area, by 5 October she was in the Pelican Lake pack area, and on 6 October she had moved to Little Rice Lake east of Monico. Wolf 724F returned to Pelican Lake area on 7-9 October, and traveled west to the Ranger Island area on 14-15 October. Wolf 395M had been in the Ranger Island area a week earlier, but he had moved into northern Forest County. Although initially 724F appeared to be attempting to return to her home pack, by this time it seemed the 2 wolves were trying to find each other. From the Ranger Island pack area, 724F headed north toward the Little Rice River pack area and then eastward back to the Pelican Lake area of Oneida County by 23 October. From there she headed southward, and on 27 October was in a wooded area east of U.S. 45 and 10 miles (49 miles south of release site). She headed back north and by 1 November was in southeast Oneida County. She roamed the area of southeast Oneida County and northwest Langlade County for the remainder of the winter. On 3 December she met up with 395M and the two appeared to re-establish as a breeding pair. The home range occupied by the two wolves was located 37 miles southwest of their original release site.

Wolf M4902: Michigan wolf 4902 was caught on 18 August 2000 in Mackinac County as a male pup. He was last located in his home territory on 21 December 2001. He was hit by a vehicle along Highway 54, east of Waupaca, Wisconsin on 19 January 2002. The minimum move across water and land was 208 miles, and if he had gone around Green Bay and Lake Michigan, his minimum move would have been 220 miles in 29 days.

Wolf M4906: Wolf 4906 was caught as an adult male on 25 June 2001 in his territory in eastern Mackinac County, Michigan. He was last located in his home territory on 2 January 2002. He was found dead along County Highway AA in northeast Menominee County, Wisconsin on 17 February 2002, but may have been there for a week earlier. The straight-line distance from his last location, across portions of Lake Michigan, was 193 miles. Minimum distance by land would have been 212 miles.

Wolf M711M: This wolf was caught as an adult male in Baraga County, Michigan on 11 July 2001. He was last located in his home territory on 13 January 2002. John Huff, DNR biologist, received reports of a collared wolf west of Marinette, Wisconsin in early March. On 27 March, WDNR pilot Mike Weinfurter located the wolf in a wooded area two miles west of Marinette and 115 miles south of his last location near L'Anse, Michigan. The wolf was again located southwest of Marinette on 1 April. On 9 April, the radio collar of the wolf was found east of Peshtigo and the wolf had apparently been killed.

Wolf M018: A male wolf pup (018M) was caught southeast of Ironwood, Michigan in July 1999. The signal of the wolf was lost in April 2000 near Mercer, Wisconsin. The wolf was shot on 23 October by a bow hunter in Gundy County, Missouri. The straight-line distance would be about 450 miles. The shortest route for this wolf would have taken the wolf through the length of Wisconsin and would have had the wolf crossing the Mississippi River somewhere in southwest Wisconsin. Another possible route would have been for this wolf to move straight westward into Minnesota and head straight south from western Minnesota. Following this route, the wolf might have traveled to Missouri without crossing the Mississippi River. Recent satellite movements of a long distance dispersing wolf (Merrill and Mech 2000) indicates that logical straight-line distances are not necessarily the direction wolves will travel.

Middleton Wolf: On 3 April 2002, an adult male wolf was killed in Middleton, Wisconsin on the west side of Madison. The wolf was assumed to be a disperser from further north in Wisconsin. The nearest pack would probably be the Suk Cerney Pack, about 73 miles to the north, but the wolf may have traveled much farther as some of these other dispersers have done.

Door County Wolf or Wolves: Reports had been received of possibly 1 or 2 wolves with red ear tags in Door County Wisconsin. Red ear tags are used by Michigan biologists for tagging wolves (Wisconsin biologists use yellow tags). Although the reports were not completely verified, there were some good observations that suggest that these may be wolves. During last winter, most of Green Bay froze over and apparently ice formed from the Garden Peninsula in Michigan to Door County, Wisconsin. Along this route, the longest distance between islands is 4.5 miles. In the late 1940's, wolves crossed 15 miles of ice to get to Isle Royale (Mech 1966). Also, if wolves traveled southeast from Menominee County Michigan, to Door County Wisconsin across Chambers Island, the maximum distance would be 7 miles across ice. Investigations will be done in the spring to determine if any wolves occur in Door County.

WOLF MORTALITY AND DISEASE

Twenty-four wolves were found dead in the state during the winter study period, including 7 collared wolves that were being actively monitored (Table 4). An additional 4 collared Michigan wolves (M0029, M0068, M3608, M4906) and a Wisconsin wolf with an inactive collar (187F) were found dead in the state. Overall causes of mortality included 9 or 10 shootings, 7 vehicle collisions, 4 likely mange, 2 other wolves, and 1 unknown (possible trauma or mange). Necropsies were not completed on some of these. Cause of death among seven Wisconsin wolves with radio collars was 3 shootings, 2 other wolves, 1 mange, and 1 unknown. In addition to these 24 wolves, a Wisconsin wolf that had recently settled into an area east of Marinette County, Wisconsin into Menominee County, Michigan, was found shot to death on January 16, 2002. The number of wolves shot in fall and winter is the highest level seen since wolves recolonized the state.

Mange continued to affect some wolves, but appeared to be less severe than 2000-2001. Mange occurred on 7 of the wolves that had died, and appeared to be the main cause of death of 4 of these wolves. Two wolves with mange were shot, possibly because they had lost fear of humans. Mange affected 2 of 7 wolves that died with active radio collars and was probably a mortality factor for one or both of these animals. Loss of wolves to mange may have caused some pack areas to be taken over by other packs including the Chain Lake into the Frog Creek area, the Log Creek into the Brunet River area, and the Bootjack Lake into the Wilson Flowage area. Mange did not appear to reduce the rate of population growth.

WOLF DEPREDAATION

Six wolf depredations on domestic animals occurred during the period of October 2001 through March 2002. These depredations included the following: 2 hounds killed in 2 separate incidents by the Pelican Lake pack in December, 3 calves killed by the Moquah pack in January, 2 deer killed by a lone wolf (?) on a deer farm near Ashland, and 2 separate attacks (injuries) on a cranberry farm in Jackson County by the Bear Bluff or possibly the South Bluff packs (Table 5). The Pelican Lake pack included female 332F that was translocated from a deer farm in western Oneida County to northern Forest County in May 2000. After extensive travels, she eventually settled into the Pelican Lake area 30 miles to the southwest.

The new Moquah pack apparently caused depredation on 3 calves in a farming area south of Moquah in Bayfield County in early January. The wolves possibly followed Pine Creek drainage into this area from the Chequamegon Forest to the north. The Pine and Fish Creek drainages are important wintering areas for deer from the Bayfield peninsula.

Although wolf depredations are slowly increasing in the state, the vast majority of wolf packs in Wisconsin are not involved in depredation on domestic animals (Treves et al. 2002).

WOLF TELEMETRY SUMMARY

A total of 115 different wolves were detected by DNR pilots, including 5 wolves in Minnesota and 110 in Wisconsin (Table 3). Two additional wolves were monitored by satellite radio telemetry. Therefore, a total of 112 Wisconsin wolves were seen or detected through radio telemetry, representing 35% of wolves counted in the state. Individual wolves were observed on 32% of radio locations between December and March. The rate is slightly less than the 36% from last winter, when snow cover was more complete throughout winter. The average size of 26 packs observed by DNR pilots was 4.3 wolves (range 2 to 12). The Bootjack Lake pack had 12 wolves in mid winter, but was down to 9-11 in late winter.

REPORTED WOLF OBSERVATIONS

Reported wolf observations continue to increase. A total of 188 reports of "probable" and "possible" wolf observations were received during the period October 2001 to March 2002 (Table 6). During the same period last year 109 reports were received. During the summer period April-September 2001, 133 reports were received.

Wolf reports were received for 31 Wisconsin counties, with the highest number of reports received from Vilas County (20) and Price County (18). When mapped (Figure 2), clusters of wolf reports closely follow pack distribution and known radio locations of collared wolves with 4 notable exceptions. Several reports were received from Door County where no packs are known to exist. Several reports were received from central and southwest Langlade County throughout the period. Wolf 724 visited the area in late October, and wolf 394 approached the area in mid-November, but neither wolf stayed for more than a few days. Observations were reported in Oconto County between November and February. No actively monitored wolves were known to visit the area during this monitoring period. Several reports were received from western Vilas County, west of the Escanaba Lake pack. This is the first year the Escanaba Lake pack has been identified and the reports may indicate the pack actually occupies a larger territory than indicated on the pack distribution map. Further field study will be required in these areas. Other outlying reports probably represent dispersing wolves.

VOLUNTEER TRACK SURVEYS

Surveys were returned for 49 survey blocks (64%) of 76 survey blocks assigned. Between DNR and volunteer trackers, a total of 91 blocks of a potential 128 blocks were surveyed (Table 7). Emphasis was on blocks with highest potential for wolf packs (Mladenoff et al 1995), blocks with known packs, or blocks where wolves were reported by general public or agency personnel. The rate of return surveys by volunteers was higher than last year (55%), but similar to 2000 (61%) and 1999 (65%). The average survey block was tracked 4.0 times over winter, covering 74.6 miles and 14.6 hours of survey per block. Volunteers detected 136-151+ wolves along 3654.1 miles of survey, and DNR trackers detected 243-265 wolves along 3371.3 miles. Rate of tracking was 5.1 miles per hour for both DNR and volunteer trackers. Volunteer trackers' rates

of wolf detection were less than DNR trackers for several reasons: many new trackers with limited experience enter the program each year, volunteers are less able to take advantage of optimum tracking conditions, and volunteers covered more areas of marginal wolf habitat. The volunteer tracking program continues to provide an important supplement to tracking efforts by DNR.

Both volunteers and DNR jointly examined 36 blocks. Neither found wolves in 8 blocks. Count for the remaining 28 blocks was 111-121 by volunteers, and 125-138 by DNR. In these blocks, volunteers found less wolves than DNR in 12 blocks, more wolves than DNR in 9 blocks, and about the same number of wolves in 7 blocks. Therefore, it appeared that when volunteers and DNR examined similar blocks, overall rates of wolf detection were similar. Participating volunteers are listed in Appendix 2.

STATEWIDE WOLF COUNT

The Wisconsin wolf population in mid or late winter was 323-339 wolves in 81 packs or groups and 8 or 9 loners (Table 8). The late winter count in 2001 consisted of 251 to 253 wolves but that count missed the following wolves detected in spring and summer 2002: a mate with wolf 332F (Pelican Lake pack), a breeding pair in the Stuntz Brook pack (only a loner was listed), a breeding pair in the Harrison Hills, and a breeding pair in the Somo River area; these 6 additional wolves should be added to the 2001 count for a total of 257-259 wolves. It appeared that the wolf population in Wisconsin increased 26% in 2002. The annual rate of increase has been about 20% annually since 1985 ($\Lambda = 1.198$), and the wolf population has shown fairly steady rates of growth throughout most of this period (Figure 3).

An estimated 89 to 151 wolf pups survived to mid or late winter 2002. Using a mid point of 120 pups, and assuming 68 potential breeding pairs, estimated pup survival was 34% statewide, but it appeared pup survival was much higher in northern Wisconsin (37%) than central Wisconsin (16%). Of 68 packs in the state in 2001, 13 appeared not to have any surviving pups. Mange was first documented in central Wisconsin only in the fall 2000, and perhaps caused higher pup losses in that area.

The area of occupied wolf territories included about 3660 square miles, and allowing for 37% interstitial areas (Fuller et al 1992), would cover an area of 5014 square miles. Therefore, 315 to 330 territorial wolves occurred at densities of 1 wolf per 15.2-15.9 square miles. Wolf range in northern Wisconsin covered 4254 square miles and contained densities of 1 wolf per 14.5 to 15.1 square miles, while central Wisconsin contained 760 square miles of wolf range and densities of 1 wolf per 20.5 to 22.4 square miles.

The system of counting wolves in Wisconsin probably under counts lone wolves. Two lone wolves from Michigan detected in eastern Wisconsin were found only after they were killed by vehicle collisions. None of 29 radio collared wolves monitored throughout the winter period were loners, and no loners were on the air for the whole study period. Only 8 loners were detected by track surveys, and although some loners were probably missed, it appeared that the percentage of loners was low throughout the study period.

PLANS FOR NEXT SEASON

Live trapping of wolves will be done from early May until early September. Attempts will be made to radio collar new packs. Aerial radio tracking will continue on a weekly basis. Howl surveys will be conducted from late June to October. USDA-Wildlife Services will investigate wolf depredations and wolves that are repeat depredators will be trapped and removed; by mid summer, federal classification may change, and some wolves will be euthanized. The state process to delist wolves will probably start in late summer.

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Note: This report is a preliminary report and should not be construed as a finalized publication. Some of the numbers of pack sizes, composition, population figures, and other information may change, as more data becomes available. Persons wishing to cite figures within the report should consult the author.